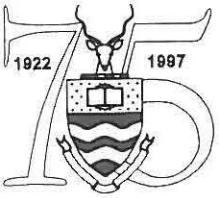
The genus *Carex* L. (Cyperaceae) in southern Africa: 1. A new species of Subgenus *Primocarex* Kük. from Northern Cape, with notes on the subgenus



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Carex acocksii C. Archer, a new species of Subgenus *Primocarex* Kük. from southern Africa, is described and illustrated. The subgenus is briefly discussed.

Keywords: *Carex*, Cyperaceae, *Primocarex*, southern Africa, taxonomy.

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Introduction

A taxonomic revision of the southern African species of *Carex* L. was completed for a M.Sc. dissertation (Reid 1991). Characters were analyzed and then keys and descriptions were produced by the DELTA (Descriptive Language for Taxonomy) computer programme (Dallwitz & Paine 1986). Sixteen species were recognized, for which a full taxonomic revision is to be published in due course. One species was found to be new to science and is here described.

The Subgenus *Primocarex* Kük.

Recognition of Subgenus *Primocarex* Kük. is currently somewhat controversial, as it is now thought to be polyphyletic (summarized in Reznicek, 1990). In his monograph of the subfamily Caricoideae, Kükenthal (1909) recognized four subgenera within *Carex*, based mainly upon inflorescence structure. He regarded the rhachilla which occurs within the perigynium, adaxial to the nutlet in his Subgenus *Primocarex* as a primitive feature. There is general agreement that the rhachilla is a vestigial organ, but whereas Kükenthal (1909) surmised that it represents a male spikelet as occurring in the closely related genera *Schoenoxiphium* Nees and *Kobresia* Willd., Kreczetowicz (1936) suggested that it could even represent a spike, and that these unispicate species are in fact highly evolved members of the other subgenera. This point of view is summarized by Jermy, Chater and David (1982) and more recently by Reznicek (1990). Savile and Calder (1953) and Smith and Faulkner (1976), respectively however, advance equally strong reasons for upholding the subgenus. Therefore, although both arguments have merit, further investigation is required, and it is convenient to uphold Subgenus *Primocarex* for the purposes of the current revision. This is also in accordance with Haines and Lye (1983) who recognize the subgenus in their treatment of East African Cyperaceae.

Description of the new species

Carex acocksii *C. Archer* sp. nov. ad subgeneris Primocaricis Kük. sectioni Petraeae Lang pertinentes C. filifolio Nutt. similis sed culmis ca. 460 mm (non 100–300 mm) altis et perigynio erostrato complanato 4 mm longo 2 mm lato haud inflato, glabro praeter trichomata pauca brevia conica versus apicem (non rostrato trigono 3.0 mm longo 1.6 mm lato inflato scabro) differt. TYPUS.—Northern Cape, Calvinia district, in vicinity of FM tower on top of Hantamsberg, Van Rhynshoek farm, 1 580 m, *Reid 1337* (PRE, holo.; J, iso.).

Perennial up to 460 mm tall, caespitose. *Rhizome* very short, 2.5–3.0 mm diameter. *Shoot scales and basal leaves* not developing extensive anthocyanin colouration. *Leaves* midgreen, without conspicuous transverse venation. *Basal leaf sheaths* tubular, old sheaths not becoming 'spongy'; adaxial face tearing into membranous strips. *Largest basal leaf blade* 220 × 0.75 mm, channelled in cross-section; adaxial and abaxial surfaces glabrous; margins proximally glabrous, distally minutely scabrid. *Lowest culm leaf:* sheath mouth concave, membranous; ligule 1 mm high, fuscous, membranous, apex obtuse. *Culm* terete in cross-section, 0.8–1.2 mm in diameter; uppermost internode very long, the lower all ± basal, very short, concealed by leaf sheaths. *Inflorescence* unispicate, androgynous, 14–28 mm long; staminate portion 2 mm diameter, pistillate portion 7 mm diameter. *Basal inflorescence bract* glume-like, not sheathing; blade 6–25 mm long. *Bracts of staminate spikes* not or only slightly dimorphic (i.e. ± identical to bracts of pistillate spikes). *Bracts of pistillate spikes* obovate, 6.0 × 3.2 mm, longer and wider than perigynium, golden-brown, with wide hyaline margins, glabrous; carina narrow, 1-nerved; apex cuspidate, awned or muticous; awn 0–0.5 mm long, margin sparsely scabrid. *Mature perigynium* suberect, sessile, without a basal callus, erostrate, 4 × 2 mm, narrowly elliptic in cross-section, not inflated, hyaline and golden brown, base interior without a layer of corky material, membranous, mainly glabrous, with a few short conical hairs near distal end, nerves few (2 or 3) or inconspicuous. *Rhachilla* always present, adaxial to nutlet, a large, flattened structure, with scabrid margins and obtuse apex. *Style* undivided portion straight (not twisted), stigmas 3. *Mature nutlet* elliptic, not clawed, 4 × 2 mm, shallowly triangular in cross-section, yellowish-brown, glabrous. (Figure 1.)

Flowering and fruiting during October and November.

Specimen Citation

South Africa

—3119 (Calvinia): Calvinia district, Hantam Mts., flat dolerite top, in watercourse (–BD), *Acocks 18638* (PRE).

Discussion

C. acocksii is undoubtedly an important discovery, as it is the only known representative of Subgenus *Primocarex* occurring in southern Africa. The species keys out in Kükenthal's monograph near to the American *C. filifolia* Nutt., Section *Petraeae* Lang. The differences are mainly in characters of the perigynium: in *C. filifolia* it is shortly rostrate, trigonous, 3.0 × 1.6 mm, somewhat inflated and scabrid; in *C. acocksii* it is erostrate, flattened, 4 × 2 mm, not inflated and glabrous except for a few short conical hairs towards the apex. From a phytogeographical point of view it is difficult to reconcile the relationship between these two species, as no other species of Section *Petraeae* is known to occur in Africa. Two species of Section *Longespicatae* Kük. (which have a long-rostrate perigynium and two stigmas, in contrast to the erostrate perigynium and three stigmas of *C. acocksii*) occur in Tropical Africa, *C. monostachya* A. Rich. in Ethiopia, Tanzania

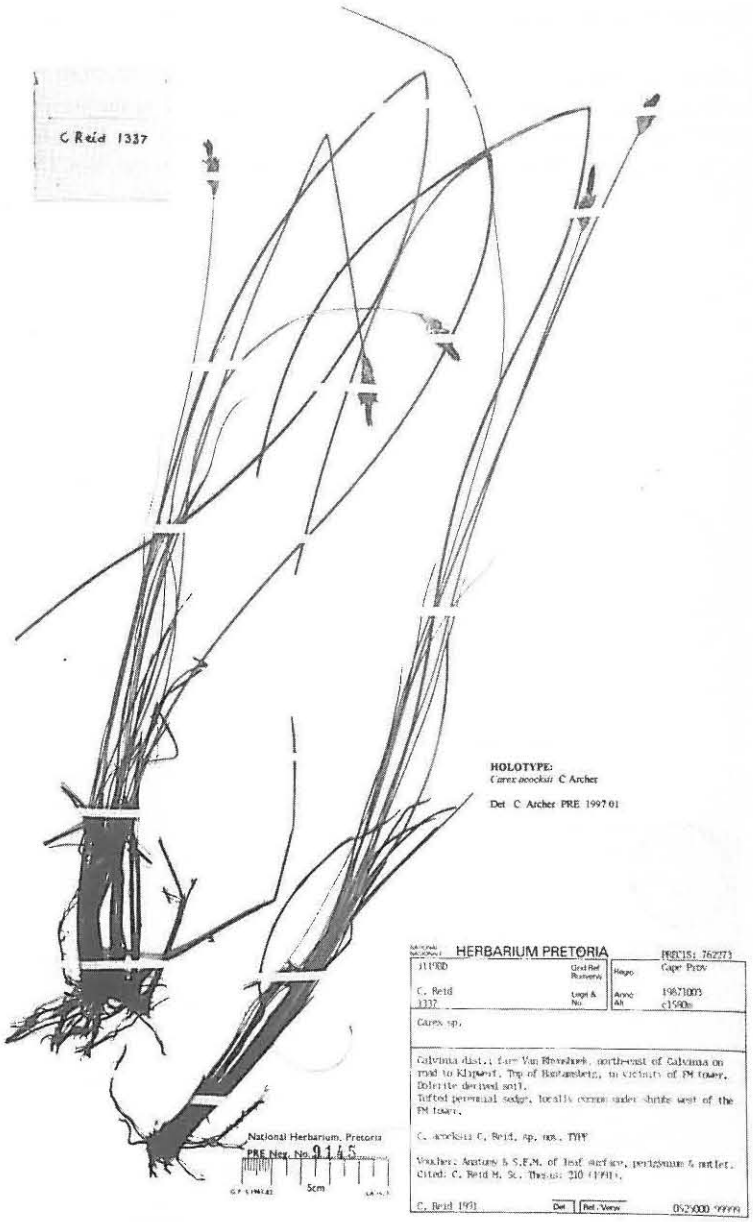

Figure 1 *C. acocksii*. Holotype (PRE). Scale = 50 mm. Photograph: A. Romanowski.

and Kenya, and *C. runssoroensis* K. Schum. (with the variety *aberdarensis* Kük.) in Uganda, Kenya and Zaire. They grow in alpine bogs and are very large plants, the latter species especially producing very large 'stilted' tussocks. A third African species, *C. peregrina* Link, in Section *Unciniaeformes* Kük., also has a long-rostrate perigynium and two stigmas. It is a small delicate plant occurring on the mountains of Kenya, Tanzania and Ethiopia as well as on the islands of Madeira and the Azores. Thus if Kükenthal's sectional classification is followed, only two of these four African species are closely related, the other two being related to geographically extremely distant species. It would seem that a re-examination of Kükenthal's sections, at least, is necessary.

Carex acocksii is currently known from only one locality, the doleritic Hantamsberg plateau near Calvinia, but should be searched for in similar habitats on adjacent mountains. In this region rainfall occurs during the winter months of June to August, during which the soil becomes waterlogged. The plants are in full vegetative growth at this time, and begin to flower when the water recedes. The culms appear to elongate subsequent to flowering, pushing up through the sclerophyllous shrubs under which the plants grow, presumably to aid dispersal of the fruits.

The species is named in honour of J.P.H. Acocks, who first collected it in November 1955.

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